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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,657	03/02/2005	Lea Di Cioccio	034299-623	5805

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EXAMINER

BARNES, SETH W

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/526,657

Applicant(s)

DI CIOCCIO ET AL.

Examiner

Seth Barnes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/17/2005.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 17 October 2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. The examiner notes a typographical error with the US Patent Document listed 3rd as shown in the signed IDS.

Specification

The abstract of the disclosure is objected to because it refers only to the purported merits of the invention and includes improper claim language. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: on page 7, line 22 after support 1 the word "en" is perceived to be a typographical error. The examiner suggests replacing "en" with --in--.

Appropriate correction is required.

Claim Objections

Claim 2 is objected to because of the following informalities: in the second line following is provided, "for to improve" is a grammatical error. The examiner suggests deleting "for". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 5 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "type" in claim 1 and 5 is a relative term, which renders the claim indefinite. The term "type" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 5 provides for the “use of the SiCOI type composite obtained by means of the manufacturing method according to claim 1”, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 5 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd. App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-3, 5, and 6 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Vinod et al., “Fabrication of Low Defect Density 3C-SiC on SiO₂ Structures Using Wafer Bonding Techniques” (Vinod).

Regarding **claim 1**, Vinod discloses on pages **L18** and **L19**, a SiCOI type

composite substrate manufacturing method comprising the following steps:

- supply of an initial substrate comprising an Si support bearing a layer of SiO₂

whereon a thin layer of SiC is transferred (**L18**, first paragraph),

- epitaxy of SiC on the thin layer of SiC (**L18**, fourth paragraph),

wherein the epitaxy is conducted at the following temperature:

- near 1410°C to obtain 3C polytype epitaxy on a transferred thin 3C polytype layer (**L19**, second paragraph).

Regarding **claim 2** and **3**, Vinod discloses on page **L18** in the fourth paragraph, the method above wherein before the epitaxy step, an initial substrate preparation step consisting of subjecting the surface of the transferred thin SiC layer to an operation selected from polishing, etching and hydrogen etching is provided.

Regarding **claim 5** and **6**, Vinod discloses on page **L20** in the last paragraph, devices that are manufactured using the method above.

Claim 1 is rejected under 35 U.S.C. 102(a) as being clearly anticipated by Letertre et al., “QuaSiC Smart-Cut Substrates for SiC High Power Devices” (Letertre).

Letertre discloses on pages 151-154, a SiCOI type composite substrate manufacturing method comprising the following steps:

- supply of an initial substrate comprising an SiC support bearing a layer of

SiO₂ whereon a thin layer of SiC is transferred,

- epitaxy of SiC on the thin layer of SiC,

wherein the epitaxy is conducted at the following temperature:

- 1450°C to obtain 4H polytype epitaxy on a transferred thin 4H polytype layer.

Claim 1 has been examined as wherein the epitaxy is conducted at the following temperatures: for a SiC support from 1450°C to obtain 6H or 4H polytype epitaxy on a transferred thin 6H or 4H polytype layer respectively; or a Si or SiC support from 1350°C to obtain 3C polytype epitaxy on a transferred thin 3C polytype layer; or Si support from 1350°C to obtain 6H or 4H polytype epitaxy on a transferred thin 6H or 4H polytype layer respectively as determined by line 3 of claim 1 (comprising an Si or SiC support).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vinod and Letertre.

Neither Vinod nor Letertre disclose wherein several SiC layers are successively grown epitaxially on the thin SiC layer. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to successively grow several SiC layers epitaxially on the thin SiC layer, since it has been held that a mere

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duplication of parts is not the type of innovation for which a patent monopoly is to be granted. *St. Regis Paper Co. v. Bemis Co., Inc.* 193 USPQ 8, 11 (7th Cir. 1977).


Conclusion

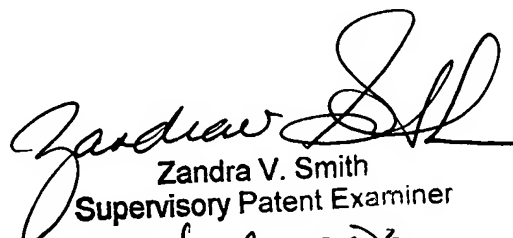
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seth Barnes whose telephone number is (571) 272-6008. The examiner can normally be reached on Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on (571) 272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SWB


7/28/06


Zandra V. Smith
Supervisory Patent Examiner
30 July 2006